

AMENDMENTS TO THE CLAIMS

The following is a complete listing of claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Original) An apparatus for fabricating a semiconductor device, comprising: a process chamber; a susceptor disposed within the process chamber; a shower part disposed to face the susceptor within the process chamber; a first supply pipe for supplying a first source gas to the process chamber; and a heating device for heating the first source gas.
2. (Original) The apparatus of claim 1, wherein the heating device is a heat pipe that has one end connected with the first supply pipe, the other end connected with the shower part, the heat pipe passing around the susceptor.
3. (Original) The apparatus of claim 2, wherein the heat pipe has a first heat part coil-shaped to surround a circumference of the susceptor.
4. (Original) The apparatus of claim 3, wherein the first heat part is inside an outer wall of the process chamber.
5. (Original) The apparatus of claim 4, wherein the first heat part is formed ranging from a lower portion of a sidewall of the process chamber to an upper portion of the sidewall of the process chamber.
6. (Original) The apparatus of claim 3, wherein the heat pipe further has a second heat part disposed in a lower wall of the process chamber and connected with the first supply pipe, and being

spiral-shaped to have a radius increasing from a central portion of the lower wall of the process chamber to an outside portion of the lower wall on the same plane.

7. (Original) The apparatus of claim 3, wherein the heat pipe further comprises a third heat part being disposed at an upper portion within the process chamber and connected with the shower part, and being spiral-shaped to have a radius increasing from a central portion of the upper wall of the process chamber to an outside portion of the upper wall on the same plane.

8. (Original) The apparatus of claim 3, wherein the first heat part is disposed between the outer wall of the process chamber and the susceptor.

9. (Original) The apparatus of claim 3, wherein the heat pipe further comprises a third heat part extending from the first heat part and surrounding a circumference of the shower part in a coiled shape.

10. (Original) The apparatus of claim 3, further comprising a liner disposed between the first heat part of the heat pipe and the susceptor.

11. (Original) The apparatus of claim 1, further comprising a second supply pipe for supplying a second source gas to the shower part.

12. (Original) The apparatus of claim 11, wherein the apparatus is a metal organic chemical vapor deposition (MOCVD) apparatus.

13. (Original) The apparatus of claim 12, wherein the first source gas is a gas flowing into the process chamber at a room temperature, and the second source gas is a metal organic gas inflowing into the process chamber in a heated state.

14. (Original) The apparatus of claim 1, wherein the heating device is a heater installed on the first supply pipe.

15. (Original) The apparatus of claim 11, wherein the shower part comprises: a first inlet part which the first source gas flows into; a second inlet part which the second source gas flows into, wherein the second inlet part is separated from the first inlet part.

16. (Original) The apparatus of claim 1, wherein a layer deposited is a ferroelectric layer.

17. (Original) The apparatus of claim 11, wherein the first source gas is an oxygen gas, and a second source gas includes lead (Pb) or compounds thereof, zirconium (Zr) or compounds thereof and titanium (Ti) or compounds thereof.

18. (Original) A heating arrangement for heating a source gas in an apparatus for fabricating a semiconductor device, comprising: at least one heating device for heating at least one source gas input to the apparatus for fabricating the semiconductor device.

19. (Original) The heating arrangement of claim 18, wherein the at least one heating device is placed in a path of a pipe for delivering the at least one source gas to the apparatus for fabricating the semiconductor device.

20. (Original) The heating arrangement of claim 18, the at least one heating device including a heat pipe including at least one part.

21. (Original) The heating arrangement of claim 20, wherein the at least one part is embedded in or inside a wall of a process chamber of the apparatus for fabricating the semiconductor device.

22. (Original) The heating arrangement of claim 20, further comprising a liner adjacent to the at least one part.

23. (Original) The heating arrangement of claim 20, wherein the at least one part is a two-dimensional or three-dimensional shape.

24. (Original) The heating arrangement of claim 23, wherein the at least one part is a linear, spiral, or helical shape.

25. (Original) The heating arrangement of claim 20, the heat pipe including at least two parts.

26. (Original) The heating arrangement of claim 25, wherein the at least two parts are a two-dimensional or three-dimensional shape.

27. (Original) The heating arrangement of claim 26, wherein the at least two parts are a linear, spiral, or helical shape.

28. (Original) The heating arrangement of claim 20, the heat pipe including at least three parts.

29. (Original) The heating arrangement of claim 28, wherein the at least three parts are a two-dimensional or three-dimensional shape.

30. (Original) The heating arrangement of claim 29, wherein the at least three parts are a linear, spiral, or helical shape.

31. (Original) A method of reducing thermal disturbance during fabrication of semiconductor device, comprising:

heating a first source gas to be supplied to a process chamber above room temperature; and
heating all other source gases to be supplied to the process chamber above room temperature.

32. (Original) A method of exchanging heat during fabrication of a semiconductor device, comprising:

heating a source gas to be supplied to a process chamber above room temperature using a heat source internal to the process chamber.

33. (Original) The method of claim 32, wherein the heat source internal to the process chamber is a heat source for a susceptor in the process chamber.